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# EXHIBIT 2

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IN THE UNITED STATES DISTRICT COURT  
FOR THE WESTERN DISTRICT OF TEXAS  
WACO DIVISION

Civil Action No. 6:21-CV-00727-ADA

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REMOTE VIDEO RECORDED DEPOSITION OF SYLVIA HALL-ELLIS  
July 27, 2023

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THE TRUSTEES OF PURDUE UNIVERSITY,

Plaintiff,

v.

STMICROELECTRONICS INTERNATIONAL N.V., and  
STMICROELECTRONICS, INC.,

Defendants.

**CERTIFIED  
TRANSCRIPT**

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APPEARANCES:

THE SHORE FIRM

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By Alex Jacobs, Esq.

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Appearing on behalf of Plaintiff.

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Appearing on behalf of Defendants.

ALSO APPEARED:

Walt Mather, the videographer

Rachel Applegate, expert witness

Rhonda Polvado, paralegal

1 A I do.

2 Q You also see the text, Remote Videotaped Deposition  
3 of Sylvia Hall-Ellis, PhD?

4 A I do.

5 Q So is it correct that you gave a deposition in a  
6 case that was titled Qualcomm, Incorporated versus  
7 Monterey Beach -- Reach, LLC?

8 A Yes.

9 Q And you gave that deposition on or about Thursday,  
10 May 6, 2021; is that correct?

11 A That's what it says. What is this? What are we  
12 doing here?

13 Q I have advanced this to Page 24 of that deposition.

14 A Okay.

15 Q Do you see that in front of you?

16 A Yes.

17 Q And is it correct that if you look at Page 24,  
18 Lines 22 through Page 25, Line 1, you were asked, have  
19 you been retained -- or have you ever been retained in an  
20 IPR by the patent owner? And you responded, I don't  
21 know. I believe maybe a very small number of times; is  
22 that correct?

23 A That is what the text says.

24 Q So you have given -- submitted declarations and IPRs  
25 on behalf -- in IPR proceedings over 500 times and only a

1 small number of times has your declaration been on behalf  
2 of the patent owner; is that correct?

3 MR. TARNAY: Object to the form of the  
4 question.

5 A You have accurately read the text. This is over two  
6 years old. I don't know what you're really asking me. I  
7 think you need to rephrase so I understand what it is  
8 you're trying to ask.

9 Q (By Mr. Offor) I think you've answered the  
10 question.

11 A Okay.

12 Q In the chat I have shared with you a document that  
13 has a file name XHE002. Do you see that document in the  
14 chat?

15 A I do not. Let me see. I cannot make it download  
16 and open for some reason.

17 Q And I --

18 MR. TARNAY: Would you like to take a  
19 moment --

20 THE REPORTER: I'm sorry. Can you please  
21 repeat what you just said?

22 (Discussion off the record.)

23 THE REPORTER: I'm talking to Attorney  
24 Tarnay, please.

25 THE VIDEOGRAPHER: This is the

1 tags?

2 A That's exactly what it is.

3 Q Okay. And at the bottom of that page, on the  
4 left-hand side, there's an HTML tag that says forward  
5 slash record; is that correct?

6 A Yes.

7 Q And at the top of the page, there's an HTML tag that  
8 starts with record; is that correct?

9 A Yes.

10 Q Now, is this the record that you included --

11 A No.

12 Q -- in your -- let me -- let me finish the question.

13 Is this the record that you included in your expert  
14 record as -- as a -- being the online -- the record of the  
15 online electronic version of the Lu dissertation?

16 A This is -- no. This is not the record I included,  
17 and the record that I included is not this one.

18 Q Okay. It's not -- it's not this one?

19 A No.

20 THE DEPONENT: We need to take a break.  
21 I'm taking a ten-minute break.

22 MR. OFFOR: A permanent break? Did --  
23 can you just repeat that? Did you ask for a break? I'm  
24 sorry. I didn't hear you.

25 THE DEPONENT: Yes. A ten-minute break.

1 I need more coffee. Thank you.

2 MR. OFFOR: No problem. Let's take a  
3 break.

4 THE VIDEOGRAPHER: The time now is  
5 10:00 a.m. We're off the record.

6 (Recess was taken.)

7 THE VIDEOGRAPHER: The time now is 10:14.  
8 We're back on the record.

9 Q (By Mr. Offor) Dr. Hall-Ellis, do you see -- can  
10 you see the screen?

11 A Yes.

12 Q And you can see that I'm sharing a screen with the  
13 Purdue logo in the upper left-hand corner, and the words  
14 Purdue University next to that?

15 A Yes.

16 Q And below that there's a text box that contains the  
17 numbers 99132578460001081; is that correct?

18 A I do see that.

19 Q Okay. And in front of you -- below that text box,  
20 about in the middle of the page, do you see the text,  
21 showing list of versions?

22 A I do see that.

23 Q And a few lines below that, do you see a numeral 1  
24 with a box around it?

25 A No. It's an Arabic one with a box, yes.

1 A Yes, it does.

2 Q And to the right of that text, do you see the  
3 numbers 03407; is that correct?

4 A Yes.

5 Q And that's followed by the characters, C-A-M?

6 A Yes.

7 Q There's a -- what appears to be a space after the M;  
8 do you see that?

9 A Yes.

10 Q And then do you see the characters A2200361?

11 A Yes.

12 Q And then after the 1, there appear to be some spaces  
13 followed by the numbers 4500; is that correct?

14 A Yes.

15 Q So this leader -- the row that's -- the line that  
16 begins with leader --

17 A Uh-huh.

18 Q -- is not in the document that you submitted as your  
19 Exhibit 1A to your report for the Lu thesis; is that  
20 correct?

21 A That is correct.

22 Q And that's because you chose not to include the  
23 leader information in the text that you --

24 MR. TARNAY: Object to form.

25 Q -- provided and submitted with your report.

1 MR. TARNAY: Object as to form.

2 A I did not include the leader.

3 Q (By Mr. Offor) And that was an intentional decision  
4 on your part?

5 A Yes.

6 Q And is the reason that you didn't include the leader  
7 because -- strike that. Is it correct that the reason  
8 you did not include the leader is because the C that  
9 appears in the fifth character position of the leader is  
10 a computer-generated code that indicates that there has  
11 been an addition or change, other than in coding level to  
12 this record?

13 A No. That is not the reason.

14 Q Is the reason that you -- is it correct that the  
15 reason -- that a reason you chose not to include the  
16 leader information is because the A, in the sixth  
17 character position, indicates a particular type of record  
18 and that is not the same type of record that is indicated  
19 on -- in Exhibit 1B that you attached to --

20 A No, that is not the reason.

21 Q -- your report?

22 A No. That is not the reason.

23 Q So there is a different reason you chose to exclude  
24 information that you planned to submit to a court; is  
25 that correct?



1 other than Attachment 1A?

2 A I don't think so.

3 Q So as far as you're aware, the sole document  
4 reflecting, in your opinion, the June 10th, 2004 date, is  
5 Attachment 1A to your expert report; is that correct?

6 A Well, we really aren't through with this discussion,  
7 so I would say I can't answer that at this time.

8 Q Well, I mean, I -- Dr. Hall-Ellis, I just -- I am  
9 asking you, you've included two metadata records,  
10 Attachment 1A and Attachment 1B, as attachments -- as an  
11 attachment to your Lu report; is that correct?

12 A I have attached two MARC records, which contain  
13 metadata, to my report. I've also included some other  
14 information in my report that give me the date of  
15 June 4th -- or whatever it is, June 10th, 2004, in 1A.  
16 And that date is one on which the item was available. So  
17 1A becomes critical in reaching that conclusion.

18 Q 1A is critical in reaching your conclusion --

19 A Yes.

20 Q -- because it's the only document -- because it's  
21 the only document that you have provided that reflects a  
22 date of June 10th, 2004; is that correct?

23 MR. TARNAY: Object to the form of the  
24 question.

25 A So can we go back to my report, to the narrative,

1 correct?

2 A That is correct. It was available on June 10th,  
3 2004. There is no doubt in my mind.

4 Q And this is the main document that you use to  
5 identify that specific date, June 10th, 2004, correct?

6 MR. TARNAY: Object to the form of the  
7 question.

8 A Yes.

9 Q (By Mr. Offor) And this document, you stated, is a  
10 MARC record from the online -- a MARC record of -- of the  
11 online version of the Lu thesis and you obtained it from  
12 the online catalog at Purdue; is that correct?

13 A Yes.

14 Q But you did not include all of the information that  
15 was in the online catalog; in fact --

16 A I --

17 Q -- you stated that you removed certain information;  
18 isn't that correct?

19 MR. TARNAY: Object to the form of the  
20 question.

21 A I did not include the leader, because it is not  
22 relevant as a piece of bibliographic data. If you knew  
23 what the leader was, you would know that.

24 Q (By Mr. Offor) So the answer is, yes; you chose to  
25 remove --

1 MR. TARNAY: Object to the form of the  
2 question.

3 Q (By Mr. Offor) -- You chose to remove -- chose to  
4 remove information from --

5 A The answer is, I did not include the leader.

6 Q And you did that intentionally?

7 A I do that intentionally.

8 MR. TARNAY: Object to the form of the  
9 question.

10 Q (By Mr. Offor) And the primary document that you  
11 are relying on for your June 10th, 2004, you removed  
12 information from the catalog that the catalog spit back  
13 to you; isn't that correct?

14 MR. TARNAY: Object to the form of the  
15 question.

16 A I've answered your question multiple times. I will  
17 not answer it again.

18 Q (By Mr. Offor) What is the information that you  
19 believe the leader shows?

20 A The leader shows the number of characters in the  
21 record itself. It also shows when the record was  
22 contributed, how it was indexed, and how it is in the  
23 system, where it's residing. In this case, it's in  
24 Voyager. It is not bibliographic data.

25 Q And is it your contention that this record before us

1 in Attachment 1A is referring to the same material that  
2 is reflected in your Attachment 1B?

3 MR. TARNAY: Object to the form of the  
4 question.

5 A Attachments 1A and 1B describe two manifestations of  
6 the same work which is, in this case, the dissertation by  
7 Dr. Lu.

8 Q (By Mr. Offor) And you are indicating that this --  
9 in this case, it is the dissertation by -- strike that.  
10 With respect to Attachment 1A, you believe Attachment 1A  
11 refers to an electronic version of the dissertation by  
12 Mr. Lu, a physical version of the dissertation by Mr. Lu,  
13 or some other material?

14 A If you look carefully at Attachment 1A, it describes  
15 the print version is coded in that way and was created at  
16 the institution that received the copy for addition to  
17 its database. So this is a print version; and 1B is an  
18 online version.

19 Q 1 -- you just said 1A is a print version?

20 A Yes.

21 Q And so did you just come to that realization now or  
22 was that your testimony in your report?

23 A That is not a recent conclusion. That is a  
24 conclusion, looking at this for the very first time.

25 I have been looking at MARC records for well over

1 fifty years, and I can tell what I'm looking at. This is a  
2 print version, MARC record, for the dissertation by Dr. Lu.

3 **Q Is that what you said in your report?**

4 A Yes, it is. This -- I have not said that this is  
5 not the print version. This was made by University  
6 Microfilms, June 10th, 2004.

7 **Q What, in your mind, is the difference between an**  
8 **online version and a print version?**

9 A They are different manifestations of the same work,  
10 which is a piece of intellectual content, created by one  
11 or more persons.

12 **Q But your testimony here today is that Attachment 1A**  
13 **does not refer to the online version?**

14 A 1A is a bibliographic record for the print version.

15 **Q And that's different from the online version?**

16 A The packaging or carrier is different. The  
17 intellectual content is not.

18 **Q But in your report, didn't you say that Attachment**  
19 **1A was for the online version?**

20 A I don't know. We can look, but they both describe  
21 the intellectual content that this person created. And  
22 regardless, they describe the same content. And we are  
23 talking about content, not packaging here.

24 **Q Dr. Hall-Ellis, I have Paragraph 43 of your report**  
25 **in front of you; do you see that?**

1 A Yeah. It does say the online catalog record.

2 Q And so --

3 A And actually, 1B is the online record.

4 Q Dr. Hall-Ellis, Paragraph 43 of your report is in  
5 front of you; is that correct? You can see it?

6 A Yes, it is.

7 Q And in Paragraph 43?

8 A It's the online version.

9 Q You state attached hereto as Attachment 1A --

10 A Let's look at it.

11 Q -- ST-Purdue\_0118846-47 is a true and correct copy  
12 of the online catalog record for the online version of  
13 this dissertation from the Purdue University libraries,  
14 West Lafayette, Indiana?

15 A Well, let's take a look at 1A one more time.

16 Q Dr. Hall-Ellis, did I read that correctly first?

17 A You did. Let's take another look. And it's in the  
18 digital repository, and it is representative of that  
19 record. I don't see that the packaging matters. It is  
20 an intellectual work. It is described. It is available  
21 in two forms. One in print. One online. They use the  
22 same record. Some people did that at this time. This  
23 was a -- this is an old record. I am not deviating from  
24 the date. I am not deviating from the work. My opinion  
25 is not changing.

1 Q Dr. Hall-Ellis, in your report, you said that 1A  
2 related to an online version. It seems like you're  
3 changing your testimony now.

4 A I am not changing my testimony and I am staying with  
5 what I have written. I have answered your questions  
6 about this and I think we could move on.

7 Q Well, I'm just trying to make sure the record is  
8 clear. Is your testimony --

9 A I think the record is -- the record is correct. The  
10 report is correct. We need to move on. We need to take  
11 a break.

12 Q Well, Dr. Hall-Ellis, let me just finish this  
13 question.

14 A No. I am taking a break. I am not answering your  
15 question.

16 THE VIDEOGRAPHER: Would you like to go  
17 off the record, sir?

18 MR. OFFOR: We can take a break. It's no  
19 problem.

20 THE VIDEOGRAPHER: The time now is 10:49.  
21 We're off the record.

22 (Recess was taken.)

23 THE VIDEOGRAPHER: One moment -- the time  
24 now is 11:14. We're back on the record.

25 THE DEPONENT: I would like to go back

1 A Yes.

2 Q And below this, you see the text character  
3 positions?

4 A Yes.

5 Q And character positions, 00 to 04 corresponds to  
6 record length?

7 A Yes.

8 Q And is it your understanding that that record length  
9 is something that's computer generated?

10 A Yes.

11 Q And so it's always going to be there, in some form?

12 A It has to be there in some form.

13 Q And we had talked about the character position 5  
14 being record status?

15 A Yes. Uh-huh.

16 Q And so this document here is indicating different  
17 values that can be in character position 5 of the leader  
18 to indicate a record status, correct?

19 A That is true.

20 Q And if the value P is in that character 5, that  
21 would indicate it would increase from -- in coding level  
22 from prepublication; is that right?

23 MR. TARNAY: Object to the form of the  
24 question.

25 A That is what the document says.



1 Q (By Mr. Offor) Well, do you -- from -- based on  
2 your knowledge and experience with MARC, would you  
3 disagree with that?

4 A This is an official federal document. I would not  
5 disagree with it.

6 Q And if you -- so in the record status, do you agree  
7 that C, the character C, in the fifth character position,  
8 which -- corresponding to record status, would indicate  
9 corrected or revised record?

10 A Yes.

11 Q We can put this one down for a second. We may come  
12 back to it. But for now, it seems -- so -- is it the  
13 case that -- in your opinion, is it all right to rely on  
14 metadata records with leader information or other types  
15 of information removed?

16 MR. TARNAY: Object to the form of the  
17 question.

18 A What we're really looking at here, is the  
19 bibliographic description of the work. And the leader in  
20 and of itself, does not describe the work. It describes  
21 how much of the record there is, when the record -- how  
22 big the record is, the level of description in the  
23 record, but it is not the bibliographic content of the  
24 record. It does not contain that.

25 Q (By Mr. Offor) And I'm not going to -- I won't

1 A Oh, yes.

2 Q -- this document?

3 A Oh, yes.

4 Q And this document is dated June 6, 2023; is that  
5 correct?

6 A Yes.

7 Q Okay. And I want to -- let's go to Paragraph 40 of  
8 your report.

9 A Okay. Give me a minute here. I am there, at 40.

10 Q All right. Is it correct that, in your opinion --

11 A Uh-huh.

12 Q -- or in your report, you stated that Attachment 1B  
13 to this report is a true and correct copy of the MARC  
14 record for the -- the Choyke book from the online catalog  
15 at the Deutsche National Bibliothek Library?

16 A No, sir. That is not correct.

17 Q What is it?

18 A It's the metadata record from the public catalog.  
19 Not the MARC record.

20 Q So 1B is not a MARC record?

21 A No, sir. It is not.

22 Q And is it your testimony that 1B is a -- is a -- is  
23 a record from the online catalog related specifically to  
24 the print version of the Choyke book?

25 A Link to this record. It has a link and the online

1 record. So it's -- I don't know. It has a link and the  
2 link -- it has -- it is printed and online. So it  
3 appears to be a combination record, where both are  
4 represented. It's available online, and that's evident  
5 as well.

6 Q Okay. Can you go to page 82 of -- of your report?

7 A Page 82.

8 Q And this should be Attachment 1B?

9 A I'm looking at 1B, which is from the National  
10 Library of Germany.

11 Q Right.

12 A It is 82. Okay. Yeah.

13 Q Is it your contention -- are you saying that this  
14 record is a -- relates to the e-Book or that it relates  
15 to the print version of the book?

16 A It appears to relate to both, although there is  
17 quite a bit of information about the electronic version.

18 Q Well, but doesn't this document in front of you  
19 indicate -- and actually state, scope, format, online  
20 resource?

21 A Yeah. It does say that.

22 Q And doesn't this document, this Attachment 1B state,  
23 other editions, and then have the tags, printout, silicon  
24 carbide?

25 A Yes. So it has both. It's telling you, this book

1 Q Okay. And Exhibit 8 --

2 A Uh-huh.

3 Q -- I'll represent to you is the XML representation  
4 that you get if you click on that link we just talked  
5 about, MARC 21XML representation of what's in Exhibit 7?

6 A Okay.

7 MR. TARNAY: Object to the form of the  
8 question.

9 Q (By Mr. Offor) And do you see here, the -- there's  
10 a leader tag, a control -- and a -- do you see a leader  
11 tag here?

12 A Yes.

13 Q And do you see the first four character -- or five  
14 character positions? So character position 0 to four?

15 A I see them. I see them.

16 Q And in the fifth character position do you see a P?

17 A I do.

18 Q And earlier we talked about how the P indicates that  
19 a record has moved from pre-publication to the final  
20 record; is that correct?

21 A Yes.

22 Q And below that leader row, do you see a tag, 001?

23 A Yes.

24 Q And there -- after that tag you -- and in between  
25 that tag, you see the numbers 967966140?

1 And if you look at my report, you will see in chapter  
2 40 -- or in Paragraph 40, that in order to get a MARC  
3 record, I actually wrote to the National Library and  
4 requested it. And I did that, because I did not want an  
5 HTML record. I did not want a metadata record. I wanted a  
6 MARC record. And because of that, I requested one, and I  
7 got one, and that is the one attached to my report, as  
8 Attachment 1C.

9 **Q And so Exhibit 7 is directly from the German**  
10 **National Library and it is a record -- not a MARC record,**  
11 **but a record, related to the print version of the Choyke**  
12 **book.**

13 A I'm not disagreeing with you, but I will remind you  
14 that libraries make many different types of records these  
15 days, because we are, in fact, in competition with Google  
16 and Amazon and search browsers and you name it, if  
17 somebody needs a record. And each of these systems uses  
18 records in a format that they are designed to manipulate.  
19 And MARC is unique in that it works primarily and only in  
20 library software designed for handling of MARC-formatted  
21 records; not HTML, not Dublin Core, not anything else.  
22 And so -- because I want to see MARC records, I am going  
23 to take the steps necessary to get them.

24 And while this is a very nice HTML record, it is  
25 outside my report and it is outside the scope of what I

1 needed to consider because I was able to get a MARC record  
2 which is what I wanted and what I examined.

3 Q Okay. Are you stating -- or is it your opinion that  
4 what you see in front of you as Exhibit 8, that this is  
5 not a MARC record? Is that your opinion?

6 A It is not a MARC record in the true sense of the  
7 word. It is the HTML or XML representation of MARC.

8 Q And so does this -- are you saying that this  
9 Exhibit 8 does not contain MARC record information?

10 A It has metadata transcribed into it that can be  
11 extracted from MARC. It is not a MARC record in the true  
12 sense of the word.

13 Q Well, but it's a MARC XML record and --

14 A No. This is -- no. They are different.

15 Q This is a MARC XML record; is it not?

16 A Yes, it is. Yes, it is.

17 Q And, in fact, the second row of text here has a  
18 record tag. And in it, you see

19 [httpwww.libraryofcongress.gov/MARC21](http://www.libraryofcongress.gov/MARC21); do you not?

20 A It's different. And it is different; and you know  
21 it's different; and I know it's different; and it is not  
22 what I included. It is not what I examined. It is  
23 outside the scope of my report, and I have nothing else  
24 to say about it, except it's a very nice XML record.

25 Q For the print version of the book?

1 MR. TARNAY: Object to the form of the  
2 question.

3 **Q (By Mr. Offor) Correct?**

4 A I'm looking.

5 MR. TARNAY: Object to the form of the  
6 question.

7 A I have not examined this record.

8 **Q (By Mr. Offor) Okay. So even though you could go**  
9 **to the German National Library website, find the record**  
10 **for the e-Book or the print book and subsequently look at**  
11 **the XML -- the MARC XML data for -- for the print book --**

12 A Uh-huh.

13 **Q -- you could do that; is that correct?**

14 MR. TARNAY: Object to the form of the  
15 question.

16 A I could do that, but I'm interested in true MARC  
17 records, and that is not what this is.

18 **Q (By Mr. Offor) And true -- and true -- true MARC**  
19 **records, you said. Okay.**

20 A They have tags, indicators, fields and subfields;  
21 and this does not have those.

22 **Q And you said that you wrote to the German National**  
23 **Library?**

24 A Yes. I e-mailed and said, please, will you send me  
25 the MARC record for this item, and I got that back, and

1 attached it to my report.

2 Q And did anybody remove information from that  
3 document?

4 MR. TARNAY: Would you repeat your  
5 question, please?

6 Q (By Mr. Offor) Did anybody remove information from  
7 that document before it was attached to your report?

8 A No. And it appears in my report, and it is on Pages  
9 85 and 86.

10 Q And so I guess my question here, is this a real MARC  
11 record?

12 A Yes. I assume you're referring to Attachment 1C?  
13 Yes, it is a real MARC record; yeah.

14 Q So I'm sharing --

15 A 85 and 86 of my report.

16 Q -- on the screen -- Okay. So on the screen, I'm  
17 showing Page 84 of your report --

18 A Okay.

19 Q -- that is a page.

20 A That's fine. Yes.

21 Q Attachment 1C?

22 A Yes.

23 Q And I will scroll to Page 85; do you see that?

24 A There it is.

25 Q But I guess my question here is that, the leader



1 information is missing. There's no character information  
2 that indicates the length of the record.

3 A Well, if you would like to tell the German Library  
4 how to operate their system, you go right ahead.

5 This is what they sent me. This is what they use. It  
6 came off their system. It is a MARC record. Their leader  
7 doesn't matter at all to me, because it is the  
8 bibliographic data I am looking for. That is what they  
9 sent me. If you don't like the way they did it, take it up  
10 with them.

11 Q Well, I guess what I'm saying is that, this document  
12 indicates that it's actually not a MARC record?

13 A No, it does not. And why would you say that?

14 Q Well, there's no leader information. I mean, not  
15 leader information. There's no --

16 A That says 000, leader. Hello? That's what it is.

17 Q Right. So that is the leader; the first row of text  
18 is the --

19 A Yes.

20 Q -- leader information?

21 A And it's there, the way they sent it. And it's --

22 Q However --

23 A -- their choice to share what they want to share.

24 Q However, the -- the leader information does not  
25 contain characters information in the 0 through 4

1 **character --**

2 A Take it up with them. That is not my issue. It is  
3 not relevant to the bibliographic description of this  
4 item, and it does not have anything to do with the  
5 cataloging date or anything else contained in the record.  
6 If you don't like the record, I am sorry. But this is  
7 the record they sent. This is the record that represents  
8 the item in that catalog and that is what I included in  
9 my report and described in paragraph 40.

10 **Q But the absence of the length information has**  
11 **everything to do with whether or not the record is real;**  
12 **whether or not this can -- you can determine if the -- if**  
13 **this is actually a real record.**

14 A It is a real record. Unlike this exhibit in 008  
15 that you sent, which is XML, which is not a real MARC  
16 record.

17 **Q So the exhibit that you can pull directly from --**  
18 **the information you can pull directly from the German**  
19 **National Library website to you, is not a real MARC**  
20 **record, even though it contains all of the leader**  
21 **information that a record is supposed to contain, but**  
22 **the -- but the exhibit that you relied on, which is**  
23 **missing mandatory computer-generated leader information,**  
24 **you're saying that this is a real record?**

25 A It is a real record. And I think it's time for

1 lunch.

2 **Q Is there anything that you did to confirm that this**  
3 **is a real record?**

4 A I think that's a -- a very insulting question to my  
5 colleagues in Germany, you obviously do not understand  
6 the community of practice that librarians in the  
7 technical field follow. We do things the same way. We  
8 follow the same rules. We have thousands of pages of  
9 rules and guidelines and practices that we follow. We  
10 understand what we're doing. We can look at these things  
11 and read them. The fact that they are not as  
12 intelligible to others is not material to us. We know  
13 what we're doing. We are experts in this field. MARC  
14 records have a look and feel that one can gather from  
15 experience and becoming an expert. I am sorry that you  
16 don't like the way that my colleagues do their work. It  
17 is not my problem. It is your problem. This is a true  
18 MARC record and I am done. It is time for lunch.

19 **Q We can go on break in just a second. I just -- I**  
20 **want to just ask a question. You said that you e-mailed**  
21 **the German National Library and they sent back this MARC**  
22 **record, correct? Is that correct?**

23 A It is correct. We're done.

24 **Q And do you have a copy of the e-mail?**

25 A I might be able to find one, but I don't have one at

1 my fingertips. If I could find one, I don't know that  
2 Counsel will allow me to produce it. But thank you for  
3 asking.

4 MR. OFFOR: Okay. Well, we would like  
5 the e-mail, the original e-mail with the original  
6 document produced to Counsel.

7 And I think the witness has asked for a break, so  
8 let's -- why don't we -- I want to honor that, and let's  
9 take a break.

10 THE VIDEOGRAPHER: The time now is 12:29.  
11 We're going off the record.

12 (Lunch recess was taken.)

13 THE VIDEOGRAPHER: The time now is 1:10.  
14 We're back on the record.

15 Q (By Mr. Offor) Dr. Hall-Ellis, when you reached out  
16 to the German National Library --

17 A Uh-huh.

18 Q -- for a MARC record, did you do so by e-mail or by  
19 phone?

20 A By phone.

21 Q And at some point you received a response from the  
22 German National Library?

23 A Yes.

24 Q And was that response by phone or by e-mail?

25 A E-mail.

1 A That's their choice.

2 Q And can you remind me -- so field 5 --

3 A 005.

4 Q Yeah; what does that represent?

5 A That represents the field for the date and time when  
6 the last modification was made to the record.

7 Q And so in this case, that would be 2022/09/02; so  
8 September 2nd, 2022?

9 A Yes.

10 Q Okay. And, again, this is one -- your Attachment  
11 1K, a MARC record from Illinois?

12 A From the University of Illinois in Champaign-Urbana.  
13 (Exhibit 9 was marked.)

14 Q (By Mr. Offor) Now, I can share this with you. I  
15 have to stop my screen sharing for a minute. I will give  
16 you what we've marked as Exhibit 9. Do you have that  
17 document, Dr. Hall-Ellis?

18 A I do not. Let me look. Well, I can barely see it.  
19 Let me open it here. Maybe I can see it better. That's  
20 pretty small.

21 Q Okay. And I'm just representing to you that this is  
22 the complete version of the record from the Illinois  
23 Library, and as you can see on the screen --

24 A Uh-huh.

25 Q -- the first two rows are the control field and the

1 leader --

2 A Uh-huh.

3 Q -- which are omitted from your Attachment 1B?

4 A Yes. Yes. I don't include those. I think we've  
5 been over this many times today. I do not include those  
6 in my use of the records. They don't matter to me.  
7 They're not important to my analysis. I do not include  
8 them. It does not mean that the record that I use is  
9 incomplete or in any way degraded.

10 Q Okay. But initially you suggested that, well, if  
11 it's not there, that it was -- this is how Illinois keeps  
12 its records --

13 A Well, I didn't --

14 Q -- and I don't know how Illinois keeps its records.  
15 So I just want to be clear that it was -- this is another  
16 record where you've removed information --

17 A I don't --

18 Q -- you omitted information --

19 A I do not include the leader or the 001 field. I  
20 don't need them. I don't use them. I don't include  
21 them. You are correct that they are there. It doesn't  
22 matter to me and it does not affect my opinion.

23 Q Switching back to your report, Attachment 1L, a MARC  
24 record from Iowa State.

25 A You can do the same thing with this.

1 Q And here, you do include the control number, but you  
2 don't include the leader information.

3 A Well, we've established that I don't do that.

4 Q Well, which is it? You just -- a second ago, you  
5 said you don't include --

6 A I usually don't. I usually don't. I don't  
7 include --

8 Q A second ago, you said you don't include the leader  
9 information and you don't control --

10 A Usually not.

11 THE REPORTER: Just one moment, please.  
12 I'm sorry. I need to get the full question.

13 Q (By Mr. Offor) A second ago you said you don't  
14 include the leader information and you don't include the  
15 control number because those things don't matter to your  
16 analysis, right?

17 A I did say that.

18 Q And now --

19 A I also -- I also said sometimes I do include them  
20 and I don't -- it doesn't matter to me. I don't use  
21 them; whether or not I include them. So you can ask me  
22 all day long, if I do or don't. The question is, I don't  
23 use them.

24 Q When do you -- how do you choose when to exclude  
25 them and when to include them?

1 A I don't know. It depends how I feel that day and  
2 how I'm doing at capturing records. This is a pretty  
3 tedious process.

4 Q Dr. Hall-Ellis, I've gone to Page 100 of your  
5 report; and specifically, I'm focusing on Attachment 1I  
6 to your report; do you see that in front of you?

7 A No. Page 100?

8 Q Yes. So the cover -- the cover page is Page 1 -- or  
9 Page 99.

10 A I -- okay. That's the one before. Okay. This is  
11 the one from the Library of Congress.

12 Q Correct.

13 A Okay. I have that in front of me.

14 Q All right. And so here, in this record from the  
15 Library of Congress --

16 A Uh-huh.

17 Q -- the leader information and the control number  
18 information are included.

19 A Yes.

20 Q And what is the -- why didn't you remove them from  
21 this record?

22 A Because the screen capture is easier to do with them  
23 in it.

24 Q Any other reasons?

25 A No.



1 Q And so do you have specific -- not -- not guessing  
2 here. I'm just asking you, with respect to this  
3 particular book that we're talking about, the Choyke  
4 book, do you have specific knowledge of why the book  
5 would have been sent to bindings and customs care?  
6 Not -- not -- not a guess.

7 A All books go there. It's not a guess. Every book  
8 goes there for labeling and preparation for sitting on  
9 the shelf. It's not optional. They go there.

10 Q Okay.

11 A This particular book, if you look at Exhibit 1, that  
12 I attached to my report, which is a -- copied from the  
13 book, was actually in the library in November of 2003.  
14 You will see the stamp on the second page of that  
15 exhibit. This book went there.

16 Q Now, again, my question to you is, was this book on  
17 the shelf, available for individuals to obtain in 2004?

18 MR. TARNAY: Object to the form.

19 A If you're asking me, did the book sit on the shelf  
20 exactly that day, that's a different question than saying  
21 was it available to the public on that day. So which are  
22 you asking me?

23 Q Was it on the shelf that day?

24 A Probably not.

25 Q And do you know what date it was on the shelf?

1 A No. But I know it was available to the public  
2 because it was in the catalog. It was labeled. It was  
3 barcoded and it was ready to go.

4 Q Well, you don't know that it was labeled.

5 A Well, you don't know it wasn't. Of course it was  
6 labeled. That's what they do in BCCD.

7 Q And, again, here -- you know, this is -- this is --  
8 what we're trying to get down to is by when was it  
9 labeled? And you don't have any specific information  
10 about the practices in BCCD or the backlog in BCCD that  
11 could -- that would allow you to say what date, by a  
12 specific date it was labeled by.

13 MR. TARNAY: Object to the form of the  
14 question.

15 A We're not here to talk about backlogs in libraries.

16 Q Well, we are here to talk about backlogs in  
17 libraries.

18 A No, we're not. No, we're not.

19 Q Yes, we are.

20 A No, we're not here to talk about that. We need to  
21 take a break.

22 THE VIDEOGRAPHER: Would you like to go  
23 off the record, sir?

24 MR. OFFOR: Yeah. We can take a break.  
25 I honor witnesses' requests for breaks.

1 happens.

2 Q But isn't -- isn't that the case in this case, or  
3 no?

4 A Well, it's curious. Because the publisher that  
5 we're dealing with here is so large and global in scope  
6 that you'll see in the German record, I believe they  
7 listed a number of locations where they have offices and  
8 publish this particular book.

9 So it makes it a very curious situation of the rules  
10 for cataloging in this country are specific as to how one  
11 treats that data; but definitely, we are talking with a  
12 very big and powerful company that produced this book and  
13 they produced it both in Germany and in the US as well as  
14 other countries.

15 Q Okay. I think I followed what you were saying.  
16 Now, for the Choyke book --

17 A Uh-huh.

18 Q -- my understanding is from the US record, you  
19 derived that it was originally cataloged in Germany on  
20 June 26, 2003?

21 A Yes.

22 Q Now, when -- if you go to the German National  
23 Library website --

24 A Uh-huh.

25 Q -- you can navigate to the record that directly

1 relates to the cataloging of -- on June 26, 2003.

2 A Okay.

3 Q But I don't believe you did that in your report?

4 A I was more interested in seeing if I could verify  
5 the availability in this country for an item that was  
6 cataloged here. That seemed more relevant. And I  
7 obtained a copy of this book from the Library of  
8 Congress, which seemed like a good thing to do.

9 Q Okay. But --

10 A And I -- and I did that. Now, the date in Germany  
11 predates the cataloging date in the United States. So  
12 that makes it even earlier.

13 Q Yes. And I think that you concluded that  
14 something -- that this book was published and available  
15 in Germany --

16 A Uh-huh.

17 Q -- on June 26th, 2003?

18 A 2003, uh-huh.

19 Q Now, if there's a record out there that indicates by  
20 way of a P in the record status field that there was a  
21 change from a pre-publication record to a full record,  
22 wouldn't that be relevant to review?

23 A You wouldn't see that.

24 Q What was that?

25 A You won't see that, because when the pre-publication

1 cataloging information would not appear on the verso of  
2 the title page because it would not have been available.  
3 It has to be requested. It has to be requested in  
4 advance. There is a process for that to happen. It  
5 is -- requires a bit of time, and I think it's one of the  
6 reasons that the Library of Congress is so careful about  
7 tracking the creation of the record, and then completing  
8 that process by saying, yes, in fact, the item has  
9 arrived. We have verified the CIP data, and we then will  
10 complete the cataloging record.

11 MR. OFFOR: I have nothing further.

12 THE DEPONENT: Thank you.

13 MR. OFFOR: Thank you.

14 MR. TARNAY: Counsel, if you give us a  
15 moment, I may have some questions. But let's go off the  
16 record and I'll check my notes and see what, if anything,  
17 I have. Thank you.

18 THE VIDEOGRAPHER: The time now is 3:03.  
19 We're off the record.

20 (Recess was taken.)

21 THE VIDEOGRAPHER: The time now is 3:12.  
22 We're back on the record.

23 EXAMINATION

24 Q (By Mr. Tarnay) Dr. Hall-Ellis, several times when  
25 describing MARC records, you made a reference to it

1 matters how you capture the information?

2 A I did say that.

3 Q What are you trying to describe when you say the  
4 manner how you capture the information?

5 A Well, it has to do with the fact that catalog  
6 records in online catalogs, are not displayed on MARC.  
7 They are certainly driven by MARC, but it takes an extra  
8 step to see the MARC version of the record, and most  
9 libraries make that possible. There are a few that do  
10 not, but most of them do. And then when seeing the  
11 record in MARC, I have to figure out, can I download it  
12 as a PDF and have it look readable and reasonable. Must  
13 I use something like Snagit to capture it and then make a  
14 PDF or do I have to do something as rudimentary as copy  
15 and paste in Word, try to fit it on a page and make it  
16 into a PDF.

17 So it's a combination of those activities, that make  
18 me not handle every MARC record the same way because of the  
19 form and the manner in which displayed by the library that  
20 has it. So it causes me to, oh, this will fit, I need  
21 this, and initially, from the bottom up, are the fields  
22 that I need, rather than the top down.

23 I know that it sounds unusual, but it's those records  
24 with a subject access, and the added entries, and the  
25 notes, and the descriptions. Those are really important,

1 and the dates are at the top, and usually, I can get it all  
2 on one page and that's usually the goal. But if I can't,  
3 it takes more time and more space.

4 **Q So once you captured the MARC record with the fields**  
5 **that you need --**

6 A Uh-huh.

7 **Q -- do you go back in and delete specific rows?**

8 A No. No. There's no point in doing that. It  
9 doesn't help anything and it doesn't hurt anything. But  
10 I am looking for the record to be legible and to be  
11 displayed in a way that I and others can read it. And so  
12 I do the best I can to capture the complete records.

13 **Q Okay. Thank you. Then, with regard to the MARC**  
14 **record, you were asked about your Exhibit 1K?**

15 THE REPORTER: 1K?

16 THE DEPONENT: 1K, as in King.

17 A From the University of Illinois.

18 **Q (By Mr. Tarnay) And as I understand it, 1K is part**  
19 **of Exhibit 2B; is that right?**

20 A I think so.

21 **Q And 1K, I believe, starts on PDF Page 105?**

22 A Yeah.

23 **Q Let me see if I can share this.**

24 A Okay. 105. I have it on my downloaded file.

25 **Q I don't know -- am I sharing anything?**

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Author

Lu, Chao-Yang &gt;

Cooper, James A. &gt;

Subjects

Electrical engineering &gt;

Description

Due to their high breakdown strength, power transistors made of wide bandgap semiconductors, for example diamond, III-V nitrides, and silicon carbide (SiC), can have 2-3 orders of magnitude lower specific on-resistance than silicon at the same blocking voltage. Therefore, these materials are attractive for high power and high blocking voltage applications. Among wideband semiconductors, SiC has attracted considerable attention because its process technology is relatively mature and because it is the only compound semiconductor with a high-quality native oxide, SiO<sub>2</sub>, making it possible to fabricate the whole family of MOS-gated devices in this material. In addition, higher thermal conductivity of SiC makes it a better choice than III-V Nitride for high power density applications. However, due to the low inversion layer mobility in 4H-SiC, the on-resistance of SiC power MOSFETs reported to date has generally been dominated by the MOS channel resistance. In this thesis, we report studies that significantly improve the inversion layer mobility. In addition, we discuss the design challenges encountered when scaling down the channel length for UMOSFET, as well as the new layouts, isolation technology and geometry we developed for improving the performance of power transistors. We also demonstrate a manufacturable process and present measurements on short channel UMOSFETs made by this process. The electrical performances of these devices in the blocking states are close to the theoretical values, and this indicates our junction termination designs are successful. However, the on-state resistance is still high due to unexpected low inversion layer mobilities (in the 0.11cm<sup>2</sup>/Vs range). This low mobility can be partly explained by the combination of impurity scattering, Coulomb scattering, surface scattering, and mobile charge reduction in the inversion channel. Future mobility studies and structure changes are proposed to improve the on-state performance of short channel UMOSFETs.

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Dissertation / Thesis	Thesis (Ph.D.)--Purdue University, 2003. Thesis (PhD)--Purdue University, ECE, DEC, 2003.
Description	<p>Due to their high breakdown strength, power transistors made of wide bandgap semiconductors, for example diamond, III-V nitrides, and silicon carbide (SiC), can have 2--3 orders of magnitude lower specific on-resistance than silicon at the same blocking voltage. Therefore, these materials are attractive for high power and high blocking voltage applications. Among wideband semiconductors, SiC has attracted considerable attention because its process technology is relatively mature and because it is the only compound semiconductor with a high-quality native oxide, SiO<sub>2</sub>, making it possible to fabricate the whole family of MOS-gated devices in this material. In addition, higher thermal conductivity of SiC makes it a better choice than III-V Nitride for high power density applications.</p> <p>However, due to the low inversion layer mobility in 4H-SiC, the on-resistance of SiC power MOSFETs reported to date has generally been dominated by the MOS channel resistance. In this thesis, we report studies that significantly improve the inversion layer mobility. In addition, we discuss the design challenges encountered when scaling down the channel length for UMOSFET, as well as the new layouts, isolation technology and geometry we developed for improving the performance of power transistors. We also demonstrate a manufacturable process and present measurements on short channel UMOSFETs made by this process. The electrical performances of these devices in the blocking states are close to the theoretical values, and this indicates our junction termination designs are successful. However, the on-state resistance is still high due to unexpected low inversion layer mobilities (in the 0.11cm<sup>2</sup>/Vs range). This low mobility can be partly explained by the combination of impurity scattering, Coulomb scattering, surface scattering, and mobile charge reduction in the inversion channel. Future mobility studies and structure changes are proposed to improve the on-state performance of short channel UMOSFETs.</p>
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Title	Design and fabrication of high performance UMOFETs in 4H silicon carbide.
Author	Lu, Chao-Yang > Purdue University >
Is Part Of	Dissertation Abstracts International 65-03B. >
Dissertation / Thesis	Thesis (Ph.D.)--Purdue University, 2003. Thesis (PhD)--Purdue University, ECE, DEC, 2003.
Description	<p>Due to their high breakdown strength, power transistors made of wide bandgap semiconductors, for example diamond, III-V nitrides, and silicon carbide (SiC), can have 2--3 orders of magnitude lower specific on-resistance than silicon at the same blocking voltage. Therefore, these materials are attractive for high power and high blocking voltage applications. Among wideband semiconductors, SiC has attracted considerable attention because its process technology is relatively mature and because it is the only compound semiconductor with a high-quality native oxide, SiO<sub>2</sub>, making it possible to fabricate the whole family of MOS-gated devices in this material. In addition, higher thermal conductivity of SiC makes it a better choice than III-V Nitride for high power density applications.</p> <p>However, due to the low inversion layer mobility in 4H-SiC, the on-resistance of SiC power MOSFETs reported to date has generally been dominated by the MOS channel resistance. In this thesis, we report studies that significantly improve the inversion layer mobility. In addition, we discuss the design challenges encountered when scaling down the channel length for UMOFET, as well as the new layouts, isolation technology and geometry we developed for improving the performance of power transistors. We also demonstrate a manufacturable process and present measurements on short channel UMOFETs made by this process. The electrical performances of these devices in the blocking states are close to the theoretical values, and this indicates our junction termination designs are successful. However, the on-state resistance is still high due to unexpected low inversion layer mobilities (in the 0.11cm<sup>2</sup>/Vs range). This low mobility can be partly explained by the combination of impurity scattering, Coulomb scattering, surface scattering, and mobile charge reduction in the inversion channel. Future mobility studies and structure changes are proposed to improve the on-state performance of short channel UMOFETs.</p>
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